

Amendments to the Claims

The listing of claims will replace all prior versions and listing of claims in the application:

Listing of Claims:

- 5 **Claim 1 (currently amended):** A compound represented by the structural formula:

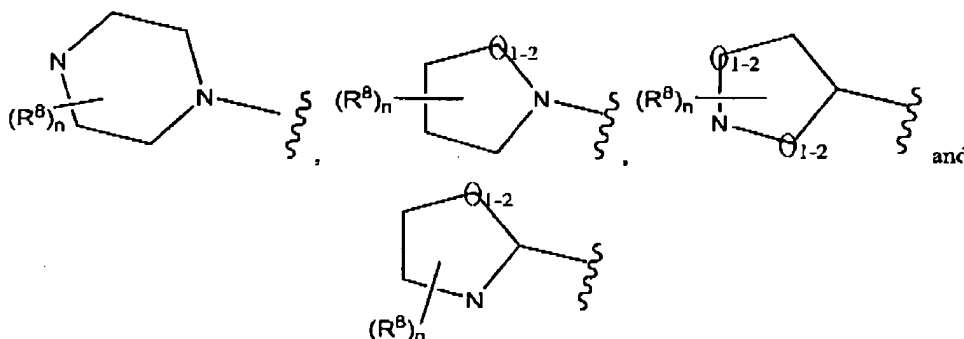


Formula III

or a pharmaceutically acceptable salt or solvate thereof,

10 wherein:

R is selected from the group consisting of H, halogen, aryl, heteroaryl, cycloalkyl, arylalkyl, heterocyclyl, heterocyclylalkyl, alkenyl, alkynyl, -C(O)R⁷,



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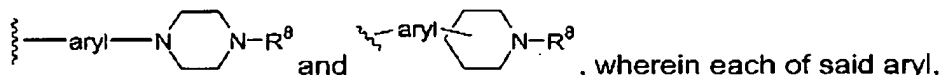
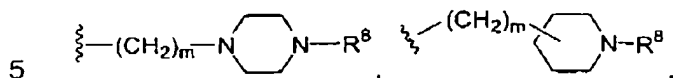
wherein each of said aryl, heteroaryl, cycloalkyl, arylalkyl, alkenyl, heterocyclyl and the heterocyclyl moieties whose structures are shown immediately above for R can be unsubstituted or optionally independently substituted with one or more moieties which can be the same or different, each moiety being

- 20 independently selected from the group consisting of halogen, alkyl, cycloalkyl, CF₃, CN, -OCF₃, -OR⁶, -C(O)R⁷, -NR⁵R⁶, -C(O₂)R⁶, -C(O)NR⁵R⁶, -(CHR⁵)_nOR⁶, -SR⁶, -S(O₂)R⁷, -S(O₂)NR⁵R⁶, -N(R⁵)S(O₂)R⁷, -N(R⁵)C(O)R⁷ and -N(R⁵)C(O)NR⁵R⁶;

R¹ is H, halogen or alkyl;

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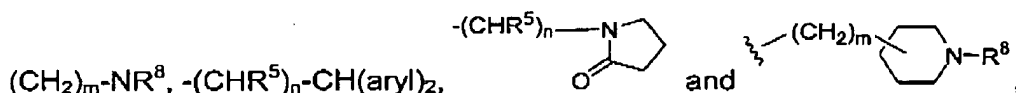
R^2 is selected from the group consisting of halogen, R^9 , alkyl, aryl, arylalkyl, heteroaryl, heteroarylalkyl, heterocyclyl, alkenyl, alkynyl, cycloalkyl, $-\text{CF}_3$, $-\text{C}(\text{O})\text{R}^7$, alkyl substituted with 1-6 R^9 groups which groups can be the same or different with each R^9 being independently selected,



heteroaryl, arylalkyl and heterocyclyl can be unsubstituted or optionally independently substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group

10 consisting of halogen, alkyl, cycloalkyl, CF_3 , CN, $-\text{OCF}_3$, $-\text{OR}^6$, $-\text{C}(\text{O})\text{R}^7$, $-\text{NR}^5\text{R}^6$, $-\text{C}(\text{O}_2)\text{R}^6$, $-\text{C}(\text{O})\text{NR}^5\text{R}^6$, $-\text{SR}^6$, $-\text{S}(\text{O}_2)\text{R}^7$, $-\text{S}(\text{O}_2)\text{NR}^5\text{R}^6$, $-\text{N}(\text{R}^5)\text{S}(\text{O}_2)\text{R}^7$, $-\text{N}(\text{R}^5)\text{C}(\text{O})\text{R}^7$ and $-\text{N}(\text{R}^5)\text{C}(\text{O})\text{NR}^5\text{R}^6$;

R^3 is selected from the group consisting of H, aryl, heteroaryl, 15 heterocyclyl, $-(\text{CHR}^5)_n\text{-aryl}$, $-(\text{CHR}^5)_n\text{-heteroaryl}$, $-(\text{CHR}^5)_n\text{-OR}^6$, $-\text{S}(\text{O}_2)\text{R}^6$, $-\text{C}(\text{O})\text{R}^6$, $-\text{S}(\text{O}_2)\text{NR}^5\text{R}^6$, $-\text{C}(\text{O})\text{OR}^6$, $-\text{C}(\text{O})\text{NR}^5\text{R}^6$, cycloalkyl, $-\text{CH}(\text{aryl})_2$, $-(\text{CHR}^5)_n\text{-CH}(\text{aryl})_2$,



wherein each of said aryl, heteroaryl and heterocyclyl can be substituted or optionally substituted with one or more moieties which can be the same or

20 different, each moiety being independently selected from the group consisting of halogen, alkyl, aryl, cycloalkyl, CF_3 , CN, $-\text{OCF}_3$, $-\text{OR}^5$, $-\text{NR}^5\text{R}^6$, $-\text{C}(\text{O}_2)\text{R}^5$, $-\text{C}(\text{O})\text{NR}^5\text{R}^6$, $-\text{SR}^6$, $-\text{S}(\text{O}_2)\text{R}^6$, $-\text{S}(\text{O}_2)\text{NR}^5\text{R}^6$, $-\text{N}(\text{R}^5)\text{S}(\text{O}_2)\text{R}^7$, $-\text{N}(\text{R}^5)\text{C}(\text{O})\text{R}^7$ and $-\text{N}(\text{R}^5)\text{C}(\text{O})\text{NR}^5\text{R}^6$;

R^5 is H or alkyl;

25 R^6 is selected from the group consisting of H, alkyl, aryl, heteroaryl, arylalkyl and heteroarylalkyl, wherein each of said alkyl, heteroarylalkyl, aryl, heteroaryl and arylalkyl can be unsubstituted or optionally substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group consisting of halogen, alkyl, aryl, 30 cycloalkyl, CF_3 , OCF_3 , CN, $-\text{OR}^5$, $-\text{NR}^5\text{R}^6$, $-\text{CH}_2\text{OR}^5$, $-\text{C}(\text{O}_2)\text{R}^5$, $-\text{C}(\text{O})\text{NR}^5\text{R}^6$,

-SR⁶, -S(O₂)R⁷, -S(O₂)NR⁵R⁶, -N(R⁵)S(O₂)R⁷, -N(R⁵)C(O)R⁷ and -N(R⁵)C(O)NR⁵R⁶;

R⁷ is selected from the group consisting of alkyl, aryl, heteroaryl, arylalkyl and heteroarylalkyl, wherein each of said alkyl, heteroarylalkyl, aryl, heteroaryl and arylalkyl can be unsubstituted or optionally substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group consisting of halogen, alkyl, aryl, cycloalkyl, CF₃, OCF₃, CN, -OR⁵, -NR⁵R⁶, -CH₂OR⁵, -C(O₂)R⁵, -C(O)NR⁵R⁶, -SR⁶, -S(O₂)R⁷, -S(O₂)NR⁵R⁶, -N(R⁵)S(O₂)R⁷, -N(R⁵)C(O)R⁷ and -N(R⁵)C(O)NR⁵R⁶;

R⁸ is selected from the group consisting of R⁶, -C(O)NR⁵R⁶, -S(O₂)NR⁵R⁶, -C(O)R⁷, -C(O₂)R⁶, -S(O₂)R⁷ and -(CH₂)-aryl;

R⁹ is selected from the group consisting of halogen, CN, NR⁵R⁶, -C(O₂)R⁶, -C(O)NR⁵R⁶, -OR⁵, -C(O)R⁷, -SR⁶, -S(O₂)R⁷, -S(O₂)NR⁵R⁶, -N(R⁵)S(O₂)R⁷, -N(R⁵)C(O)R⁷ and -N(R⁵)C(O)NR⁵R⁶;

m is 0 to 4;

n is 1-4; and

p is 0-3.

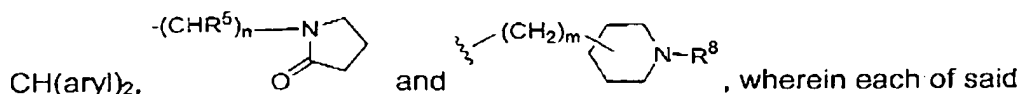
Claim 2 (currently amended): The compound of claim 1, wherein R is selected from the group consisting of H, halogen, aryl, heteroaryl, alkenyl and -C(O)R⁷, wherein each of said aryl and heteroaryl can be unsubstituted or optionally independently substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group consisting of halogen, alkyl, CF₃, CN, -OCF₃, and -OR⁶;

R¹ is H or lower alkyl;

R² is selected from the group consisting of halogen, alkyl, aryl, heteroaryl, alkenyl and -C(O)R⁷, wherein each of said alkyl, aryl and heteroaryl can be unsubstituted or optionally independently substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group consisting of halogen, alkyl, CF₃, CN, -OCF₃, and -OR⁶;

R³ is selected from the group consisting of H, aryl, heteroaryl, -(CHR⁵)_n-aryl, -(CHR⁵)_n-heteroaryl, -(CHR⁵)_n-OR⁶, -C(O)R⁶, cycloalkyl, -

5



aryl and heteroaryl can be substituted or optionally substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group consisting of halogen, alkyl, aryl, CF₃,

5 CN, -C(O₂)R⁵ and -S(O₂)R⁶;

R⁵ is H or lower alkyl;

m is 0 to 2; and

n is 1 or 2.

Claim 3: (cancelled).

10 Claim 4: (cancelled).

Claim 5 (original): The compound of claim 2, wherein R is phenyl substituted with one or more moieties selected from the group consisting of F, Cl, Br and OCF₃.

Claim 6 (currently amended): The compound of claim 2, wherein R² is F,
15 Cl, Br, I, methyl, ethenyl, or -C(CH₃)₂-OH.

Claim 7 (currently amended): The compound of claim 6, wherein R² is Br, or I or methyl.

Claim 8 (previously presented): The compound of claim 2, wherein R³ is H, propan-1-ol-2-yl, phenyl, benzyl, (pyrid-2-yl)methyl, (pyrid-3-yl)methyl, (pyrid-4-yl)methyl, 2-[(pyrid-3-yl)]ethyl and 2-[(pyrid-4-yl)]ethyl wherein each of said
20 phenyl (including phenyl of said benzyl) and pyridyl can be unsubstituted or optionally independently substituted with one or more moieties which can be the same or different, each moiety being independently selected from the group consisting of F, Cl, Br, CF₃, lower alkyl, -S(O₂)CH₃, methoxy and CN.

25 Claim 9: (cancelled).

Claim 10 (original): The compound of claim 8, wherein R³ is (pyrid-2-yl)methyl.

Claim 11 (original): The compound of claim 8, wherein R³ is (pyrid-3-yl)methyl.

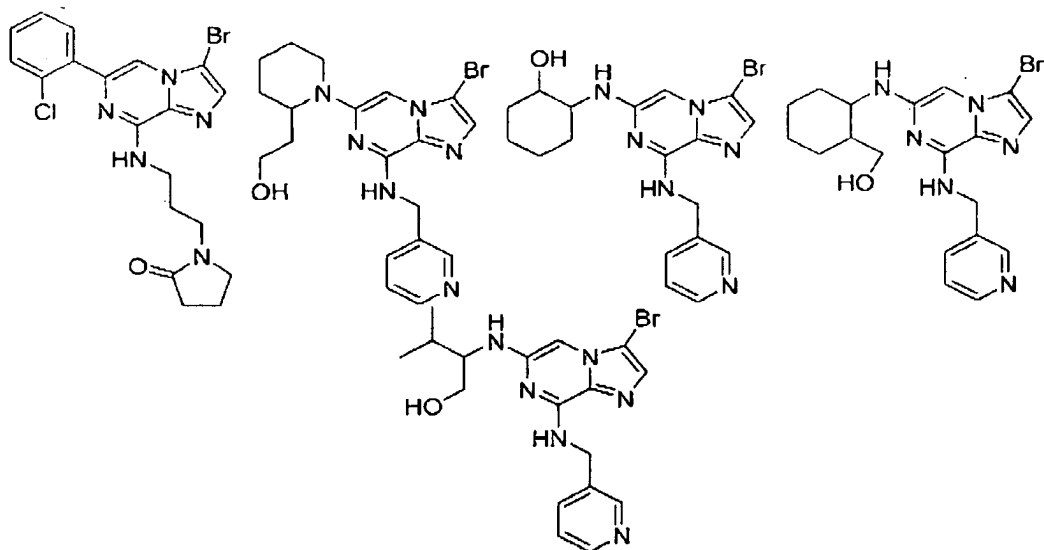
30 Claim 12 (original): The compound of claim 8, wherein R³ is (pyrid-4-yl)methyl.

Claims 13-16: (cancelled).

Chemical structures of 15 pyrazolo[1,5-a]pyrimidine derivatives, numbered 1 through 15, showing various substituents and functional groups.

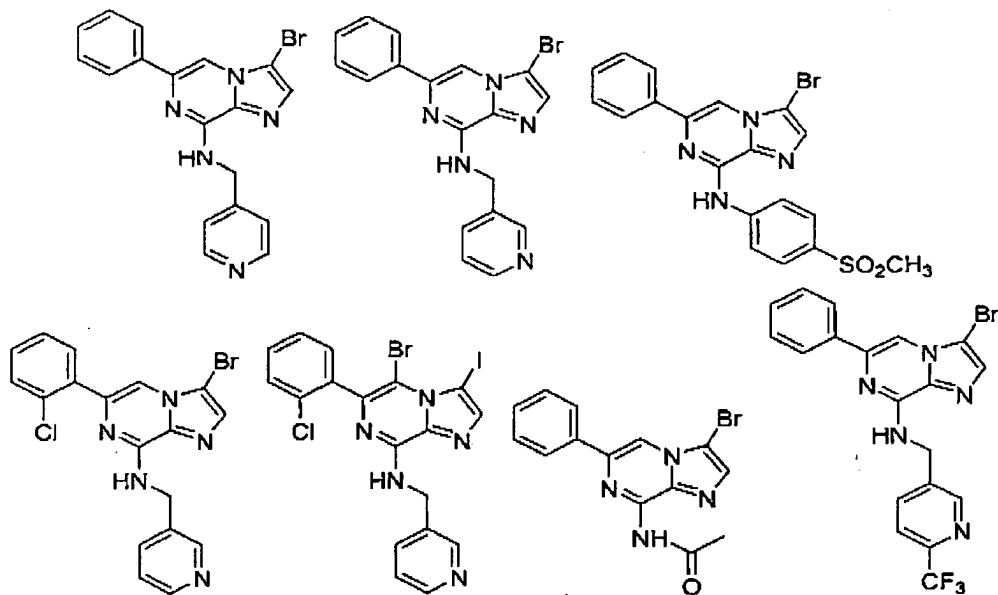
- 1: 2-(2-chlorophenyl)-4-(pyridin-2-ylmethyl)-7-bromo-5-iodo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 2: 2-(2-chlorophenyl)-4-(pyridin-2-ylmethyl)-7-bromo-5-chloro-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 3: 2-(2-chlorophenyl)-4-(4-(4-(trifluoromethyl)benzoyl)piperidin-1-yl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 4: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-5-iodo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 5: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 6: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-5-(thiophen-2-yl)-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 7: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 8: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-5-(thiophen-2-yl)-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 9: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 10: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-5-(thiophen-2-yl)-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 11: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 12: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-5-(thiophen-2-yl)-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 13: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 14: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-5-(thiophen-2-yl)-1H-pyrazolo[1,5-a]pyrimidin-3-amine
- 15: 2-phenyl-4-(pyridin-2-ylmethyl)-7-bromo-1H-pyrazolo[1,5-a]pyrimidin-3-amine

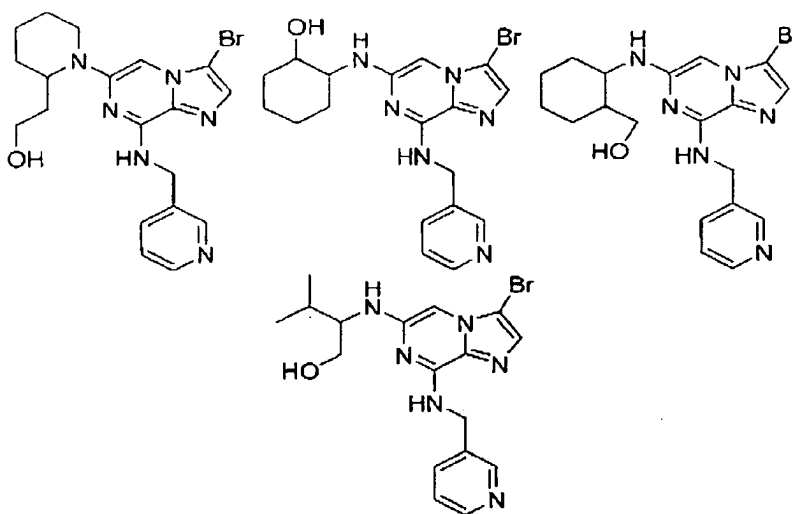
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5 or a pharmaceutically acceptable salt or solvate thereof.

Claim 18 (original): A compound of the formula:





or a pharmaceutically acceptable salt or solvate thereof.

- 5 Claim 19 (previously presented): A method of inhibiting cyclin dependent kinase ("CDK2"), comprising administering a therapeutically effective amount of at least one compound of claim 1 to a patient in need of such inhibition.

Claim 20-24: (cancelled)

- 10 Claim 25 (currently amended): A method of inhibiting cyclin dependent kinase CDK2, comprising administering to a mammal in need of such inhibition treatment

an amount of a first compound, which is a compound of claim 1, or a pharmaceutically acceptable salt or solvate thereof;
and

- 15 an amount of at least one second compound, said second compound being an anti-cancer agent;

wherein the amounts of the first compound and said second compound result in a therapeutic effect.

- 20 Claim 26 (original): The method of claim 25, further comprising radiation therapy.

- Claim 27 (original): The method of claim 25, wherein said anti-cancer agent is selected from the group consisting of a cytostatic agent, cisplatin, doxorubicin, taxotere, taxol, etoposide, CPT-11, irinotecan, camptostar, topotecan, paclitaxel, docetaxel, epothilones, tamoxifen, 5-fluorouracil, methotrexate,
25 5FU, temozolomide, cyclophosphamide, SCH 66336, R115777, L778,123,

- BMS 214662, Iressa, Tarceva, antibodies to EGFR, Gleevec, intron, ara-C, adriamycin, cytoxan, gemcitabine, Uracil mustard, Chlormethine, Ifosfamide, Melphalan, Chlorambucil, Pipobroman, Triethylenemelamine, Triethylenethiophosphoramine, Busulfan, Carmustine, Lomustine,
- 5 Streptozocin, Dacarbazine, Floxuridine, Cytarabine, 6-Mercaptopurine, 6-Thioguanine, Fludarabine phosphate, oxaliplatin, leucovirin, ELOXATIN™, Pentostatine, Vinblastine, Vincristine, Vindesine, Bleomycin, Dactinomycin, Daunorubicin, Doxorubicin, Epirubicin, Idarubicin, Mithramycin, Deoxycoformycin, Mitomycin-C, L-Asparaginase, Teniposide 17α-
- 10 Ethinylestradiol, Diethylstilbestrol, Testosterone, Prednisone, Fluoxymesterone, Dromostanolone propionate, Testolactone, Megestrolacetate, Methylprednisolone, Methyltestosterone, Prednisolone, Triamcinolone, Chlorotrianisene, Hydroxyprogesterone, Aminoglutethimide, Estramustine, Medroxyprogesteroneacetate, Leuprolide, Flutamide,
- 15 Toremifene, goserelin, Cisplatin, Carboplatin, Hydroxyurea, Amsacrine, Procarbazine, Mitotane, Mitoxantrone, Levamisole, Navelbene, CPT-11, Anastrozole, Letrazole, Capecitabine, Reloxafine, Droloxafine, or Hexamethylmelamine.

Claim 28 (original): A pharmaceutical composition comprising a

20 therapeutically effective amount of at least one compound of claim 1 in combination with at least one pharmaceutically acceptable carrier.

Claim 29 (original): The pharmaceutical composition of claim 28, additionally comprising one or more anti-cancer agents selected from the group consisting of a cytostatic agent, cisplatin, doxorubicin, taxotere, taxol, etoposide, CPT-

25 11, irinotecan, camptostar, topotecan, paclitaxel, docetaxel, epothilones, tamoxifen, 5-fluorouracil, methotrexate, 5FU, temozolomide, cyclophosphamide, SCH 66336, R115777, L778,123, BMS 214662, Iressa, Tarceva, antibodies to EGFR, Gleevec, intron, ara-C, adriamycin, cytoxan, gemcitabine, Uracil mustard, Chlormethine, Ifosfamide, Melphalan,

30 Chlorambucil, Pipobroman, Triethylenemelamine, Triethylenethiophosphoramine, Busulfan, Carmustine, Lomustine, Streptozocin, Dacarbazine, Floxuridine, Cytarabine, 6-Mercaptopurine, 6-Thioguanine, Fludarabine phosphate, Pentostatine, Vinblastine, Vincristine,

Vindesine, Bleomycin, Dactinomycin, Daunorubicin, Doxorubicin, Epirubicin, Idarubicin, Mithramycin, Deoxycoformycin, Mitomycin-C, L-Asparaginase, Teniposide 17 α -Ethinylestradiol, Diethylstilbestrol, Testosterone, Prednisone, Fluoxymesterone, Dromostanolone propionate, Testolactone,

- 5 Megestrolacetate, Methylprednisolone, Methyltestosterone, Prednisolone, Triamcinolone, Chlorotrianisene, Hydroxyprogesterone, Aminoglutethimide, Estramustine, Medroxyprogesteroneacetate, Leuprolide, Flutamide, Toremifene, goserelin, Cisplatin, Carboplatin, Hydroxyurea, Amsacrine, Procarbazine, Mitotane, Mitoxantrone, Levamisole, Navelbene, CPT-11,
- 10 Anastrozole, Letrozole, Capecitabine, Reloxafine, Droloxafine, or Hexamethylmelamine.

Claim 30: (Cancelled).